Direct Push Samples

- Steel rods pushed, vibrated or driven into ground
- Filled with sampling devices for soils or fluids
- Can be fitted with sensors (CPT cones/LIF)
- Limited to moderate depth, 20'-60' except under ideal conditions

Convert TPH Results to Saturation

$$S_o = TPH \times \frac{(1-\phi)\rho_{gr} \times 10^{-6} \frac{kg}{mg}}{\phi \rho_o}$$

where:

S_o	=	total hydrocarbon saturation (dimensionless)
TPH	=	total petroleum hydrocarbon concentration in mg/kg
ρ_{gr}	=	grain density (typically 2.65 g/cm^3)
ϕ	=	porosity (dimensionless)
ρ_o	=	density of the hydrocarbon, liquid (g/cm^3)

Saturation

Ratio $\frac{\text{Volume of phase}}{\text{Volume of void}}$

Dimensionless, expressed as fraction or percent

Porosity

- Defines storage potential
- Ratio $\frac{\text{Volume of Void Space}}{\text{Total Volume}}$
- Dimensionless expressed as fraction or percent